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## Low-cost apartment program implementation in Surabaya metropolitan area

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### Abstract

The low-cost apartment development program is one of the reliable solutions to reduce housing backlog in East Java Province due to land scarcity and high price of land. There are some supporting regulations concerning low-cost apartment management and implementation. But in some aspects, existing low-cost apartment program implementation does not meet the regulation and inhabitant's need. The objectives of this research are to compare the low-cost apartment regulation and real implementation in Surabaya Metropolitan Area and to generate improvement strategies. The regulation and technical standard variables were obtained from literature review studies. The comparison parameters to better understand the low-cost apartment implementation were then observed to purposive sampling respondents from management team and 221 random sampling respondents from inhabitants. These unconformity variables were then identified and analyzed using descriptive statistic. The result shows that some problems between regulation and real implementation are associated with rental price, inhabitant segmentation, maintenance program, location and building technical standards. Some strategies for the better implementation according to the inhabitant's need and regulation are inhabitant segmentation from low-income groups, limitation in occupancy, partnership initiation with private sector who wants to provide the housing for their employee in their land, rental price adjustment and better coordination between institutions.

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## 1. Introduction

Due to the center of activities such as industrial estate, education, trading and any other businesses which are widely scattered in Surabaya Metropolitan Area, a lot of workers come and live in Surabaya Metropolitan Area to get the more proper occupation. This condition has generated the population increasing in Surabaya Metropolitan Area. The high population density will bring into some problems related settlement provision. On the contrary the growth of housing is not equal with the needs and resulted in the growth of illegal housing in the illegal slump area. One of problems facing the settlement provision is housing backlog rate in Indonesia, East Java Province and especially Surabaya. Until 2012, the housing backlog is 600.000 units [1]. On the other hand, only 60.000-70.000 units per year could be provided by the East-Java Province Government and private sector. The housing backlog rate was also caused by the land scarcity and the housing expensive price in Surabaya [2].

In Indonesia, low-cost apartment development program is one of Government's solutions to reduce housing backlog which dedicated for low-income people [3]. Low-cost apartment development program is fully supported by Government. The existing low-cost apartments were always built by the Ministry of Public Works and the Ministry of Public Housing. Until 2014, local Government in East Java Province (Province, Municipal and District) has adopted this program by developing 276 twin blocks include 21,644 units [4]. There are some regulations concerning low-cost apartment management, technical standard, implementation and organization. Unfortunately, in some aspects, existing low-cost apartment implementation do not meet the regulation and inhabitant's need. The objective of this paper are to compare the low-cost apartment regulation and real implementation in Surabaya Metropolitan Area and to summarize improvement strategies.

## 2. Study Location

Surabaya Metropolitan Area consists of 3 (three) municipal and districts, namely Surabaya Municipality, Gresik Districts and Sidoarjo Districts. Surabaya has the higher population density than any other districts in Surabaya Metropolitan Area. It has 8459 people/km<sup>2</sup>, while Sidoarjo District has 2744 people/km<sup>2</sup> and Gresik District has population density around 956 people/km<sup>2</sup> [5]. There are 30 low-cost apartments managed by local government in Surabaya, Gresik and Sidoarjo.

## 3. Literature Review

### 3.1. Government Regulations

- a. Indonesian Republic Act no 20/2011 concerning low-cost apartment
  - The objective of low-cost apartment development program is to fulfill the social and economic needs through affordable and adequate settlement especially for low-income group (article 3).
  - The development planning concerning location should follow the municipal/district government spatial regulation (article 13)
- b. Indonesian Housing Minister Regulation no 14/2007 concerning low-cost apartment management
 

Low-cost apartment management includes some aspects (article 3):

  - Building construction includes facilities, infrastructure and utility (article 4):
    - Facilities: Education, health, praying and sport facilities
    - Infrastructure: road, stairs, corridor, drainage, waste water treatment, waste system and clean water
    - Utilities: electrical, gas and telephone network, and fire extinguisher
  - Inhabitant which mentioned the inhabitant categories are government employee, army/police, labours, low-income group and students (article 15)

Inhabitant responsibilities (article 20):

1. Pay the rental fee monthly
2. Keep the building cleanliness
3. Pay the utilities retribution

While inhabitant prohibitions are:

1. Illegal take over of the unit
2. Over capacity unit occupation (article 21)

- Administration

The low-cost apartment administration includes finance and marketing (article 23)

- Institution

On behalf of municipal/district government, the management body is appointed to manage the low-cost apartment (article 30, 32)

- Development, evaluation, monitoring and controlling

These functions are managed by management body which consist of administrative and technical aspects (article 43, 46 and 47)

c. Indonesian Housing Minister Regulation no 18/2007 concerning low-cost apartment tariff

There are 3 types of rental price (article 6):

1. Commercial rental price is rental price determination based on the sum of the overall investment costs by considering the value of depreciation over the economic life of the building, the interest rates, monthly maintenance and operating costs, divided by the number of low-cost apartment unit.
2. Base rental price is rental price determination based on the monthly maintenance and operations cost divided by the number of low-cost apartment unit.
3. Social rental rates is rental price determination based on the monthly maintenance cost divided by the number of low-cost apartment unit.

d. Indonesian Minister of Public Works Regulation no 05/PRT/M/2007 concerning technical standards of high-rise low-cost apartment

e. Indonesian Minister of Public Works Regulation no 29/PRT/M/2006 concerning technical standards of high-rise building

### 3.2. Comparison Criterias

According to the Indonesian Act no 20/2011, the low-cost apartment development should follow these aspects:

- a. Planning and development
- b. Management
- c. Occupancy
- d. Facilities

## 4. Data Collection

To elicit useful data, an empirical questionnaire survey and observation were undertaken in existing low-cost apartment in Surabaya, Gresik and Sidoarjo. The criterias from Indonesian Act no 20/2011 were adopted to be comparison criterias. In this study, the target survey respondents of the questionnaire included all management bureau from the public, private and inhabitants (3 out of 15 targeted low cost apartments are under the collaboration between public and private sector). Target respondents were those with direct hands-on involvement in low-cost apartment projects. These respondents were requested to answer the question and describe the real condition. Observation was done to 15 out of 30 low-cost apartments which have been operated and managed by local and province government (not managed by university or foundation) in Surabaya, Gresik and Sidoarjo. The questions for inhabitants are associated with inhabitant profile; expected facilities, infrastructure and utilities ; and rental fee. While the questions

for management body related to management aspect and problem responses. The 15 targeted low cost apartment and respondents are described in the table 1 below:

Table 1. Sample Data

Low-cost Apartment	Operator	Number of respondents (inhabitant)	Number of respondents (management)
Siwalan kerto	East Java Province Government	12	2
Griya Asri SIER	East Java Province Government	5	2
Gunungsari	East Java Province Government	22	5
Gulomantung	Gresik District Government	15	7
Grudo	Surabaya Municipality Government	25	4
Jambangan	Surabaya Municipality Government	13	5
Dupak Bangunrejo	Surabaya Municipality Government	11	2
Randu	Surabaya Municipality Government	10	1
Wonorejo	Surabaya Municipality Government	11	1
Pesapen	Surabaya Municipality Government	10	1
Penjaringan Sari 3	Surabaya Municipality Government	10	2
Sombo	Surabaya Municipality Government	12	1
Warugunung	Surabaya Municipality Government	40	2
Tambak sawah	Sidoarjo District Government	20	4
Bulusidokare	Sidoarjo District Government	5	1

## 5. Analysis and Discussion

### 5.1. Planning and Development

Indonesian Act no 20/2011 article 14 mentions that low-cost apartment may be built in the area with some consideration as follows:

- a. Building density
- b. Number and population density
- c. Spatial planning
- d. Public facilities
- e. Public transportation
- f. Low-cost apartment need analysis

While Indonesian Ministry of Public Works mentioned in the low-cost apartment building guidance, that low-cost apartment should be built close to the workplace (6). On the other hand, the existing condition and the program implementation are described as follows:

- a. The existing low-cost apartments were always built in Local Government's asset land. Local Governments are province and district/municipality government. Therefore, because of land availability, some existing low-cost apartments are located far away from the workplace and city center. The low-cost apartment was not built based on population density consideration. This problem has triggered the high transportation cost for the employees. The distance between residential location and the workplace or Central Business District (CBD) has great effect for middle to lower income people. From the questionnaire, 40% of respondents answered the distance from low-cost apartment > 3 km as showed in Figure 1.

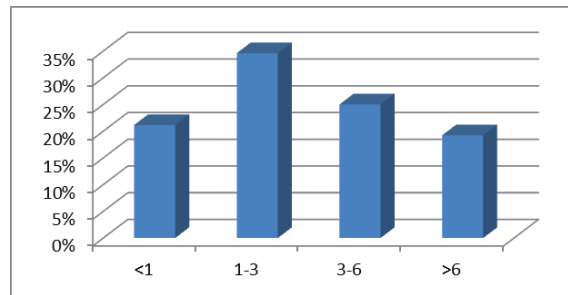


Fig.1. Distance from the workplace

- b. The existing low-cost apartments in Surabaya are scattered far away from industrial estate and any other workplaces depend on government's asset land availability. So that 69% workers spend IDR 100.000 – IDR 300.000 for transportation cost per month. Moreover, recent constrain in developing low-cost apartment is lack of land availability.

### 5.2. Management

Low-cost apartment management includes operational and maintenance activities ([7] article 56 and 57). Operational and maintenance cost are covered by inhabitants in the form of rental fee and government subsidy. That is why according to [8] concerning Guidelines for State-financed Low-cost apartment rental price, there are 3 types of rental price explained in the section 2.

Based on local government regulation [8] and [9], Low-cost apartment operated by Sidoarjo District (Tambak Sawah), Gresik District (Gulomantung) and East Java Province (Gunungsari and Siwalan Kerto) have higher rental price than low-cost apartment operated by Surabaya Municipality. That is the reason why Surabaya Government always subsidizes the operational maintenance cost monthly. In reality, the rental prices are very low and below the social rental price. The rental price for low-cost apartment managed by local government (municipality and district) is between IDR 20.000 – 100.000; while it is higher for low-cost apartment managed by the province government. Moreover, the operational and maintenance costs have to be subsidized by the province and the local government (Ministry of Public Works, 2012; Indryani et al, 2012). This table represents the low-cost apartment tariff.

Table 2. Existing Low-cost Apartment Rental Price

No	Low-cost Apartment	Number of floor	Rental price (IDR)
1	Jambangan (Surabaya)	5	39.000 – 87.000
2	Grudo (Surabaya)	5	36.000 – 80.000
3	Siwalan kerto (Jawa Timur)	5	258.000 – 734.000
4	Sombo (Surabaya)	3	20.000 – 50.000
5	Dupak Bangunrejo (Surabaya)	3	20.000 – 50.000
6	Pesapen (Surabaya)	5	38.000 – 85.000
7	Penjaringansari III (Surabaya)	5	34.000 – 76.000
8	Wonorejo (Surabaya)	4	38.000 – 59.000
9	Randu (Surabaya)	5	22.000 – 48.000
10	Gunungsari (Jawa Timur)	5	156.000 – 235.000
11	Tambak Sawah (Sidoarjo)	3	250.000 – 300.000
12	Gulomantung (Gresik)	3	95.000 – 105.000
13	Bulusidokare (Sidoarjo)	5	245.000 – 300.000
14	Warugunung (Surabaya)	5	60.000 – 105.000
15	Griya Asri	5	220.000 – 300.000

Source: pilot survey, 2014 ; [9]; [10]; [11]

The proper rental price needs to be adjusted. Due to the low rental price, there are hundreds of applicants who want to occupy the low-cost apartment in Surabaya. On the contrary, there are only a few applicants who want to occupy the low-cost apartment in Sidoarjo, as the rental price is higher than rental price in Surabaya. The low rental price in Surabaya is aggravated with the late payment from the inhabitants due to their ability and willingness to pay. As mentioned in section 2.1, the inhabitants have to pay the rental fee monthly. The low-cost apartment rental price should adopt the regulation concerning rental fee/tariff. There are two tariff options: social rental price (only for operational cost) or 1/3 of inhabitants income. [13] explained that rental fee should not more than 1/3 of inhabitant's income. The analysis to determine the proper rental fee should be conducted.

Ministry of Housing and Ministry of Public Works are responsible for the low-cost apartment development which would be built in the Local Government's land. [6;7]. Local Government has operated low-cost apartment after delivery process from Ministry of Housing or Ministry of Public Works [6]. Then, Technical Operation Unit (management body) in the Land and Building Department has appointed to operate low-cost apartment on behalf of Municipal/District Government [9]. The drawbacks of the system is long-time feedback for proposed maintenance program as the technical operation unit does not have authority for any programs. Due to long delivery process and poor building quality, Local Government sometimes needs to repair some broken components significantly before operate the low-cost apartment (preliminary survey, 2014). This kind of problem has been occurred in all low-cost apartments.

#### 4.3 Ownership/Occupancy

Low-cost apartment development program is aimed to fulfill the proper housing needs, especially for low-income people ((7) article 54). Some existing low-cost apartments in Surabaya are occupied by mixed segmentation, not only low-income people but also moderate income and even unemployed. The low-cost apartment's inhabitants are from relocation program communities and re-settlement program. There is no segment and special low-cost apartment, for instance low cost apartment for industrial employees or other certain institution employee. As mentioned above, the inhabitants in the existing low-cost apartments are the relocation program community which part of them are unemployed so that it is hard for them to pay higher for the rental price.

Furthermore, the length of stay for inhabitant is 3 years, and it may be extended twice [12]. In fact, the inhabitants have been occupied for more than 9 years. Another occupation problem in some low-cost apartments, the inhabitants took over the unit by illegal transaction to get the higher sale price or benefit. The illegal units development problems have also occurred in some low-cost apartments which inhabitants build the additional room in the public facilities.

#### 4.4 Facilities

Technical standard categories are conducted according to Indonesian Minister of Public Works no 29/PRT/M2007 and Indonesian Minister of Public Works Regulation no 05/PRT/M/2007 concerning technical standards of high-rise low-cost apartment, while the survey result is described as follows:

- From all low-cost apartments, only Jambangan, Grudo, Gunungsari and Pesapen provide public bathroom in the first floor. Communal bathrooms, which are available in each floor, are provided in Sombo and Dupak Bangunrejo low-cost apartment. 57% respondents from those two low-cost apartments gave the good perception while 29% respondents gave the good enough perception as most of the inhabitants are low class communities.
- All low-cost apartments provide praying place for moslem inhabitants, especially Gulomantung and Siwalan Kerto low-cost apartment which provide mosque. 47% respondents from those two low-cost apartments gave the good perception while 21% respondents gave the very good perception. The rests are non-moslem inhabitants who want the specific praying place for their religion.
- Education facility in Siwalan Kerto, Jambangan, Gulomantung and Gunungsari low-cost apartment are located > 1 km. Therefore, half of respondents for each low-cost apartment gave the poor perception.
- As built drawing should be available in the management office for further maintenance (Indonesian Minister of Public Works Regulation no 60/PRT/M/1992). On the contrary, it is not available in the existing low-cost apartments.

- Safety and supporting instalation, such as fire fighter and waste water tretament are not available in some existing low-cost apartments.

Table 3. Public Facilities in Existing Low-Cost Apartment

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Public Bathroom	√	√				√	√						√	√	√
Clean water	√	√	√	√		√	√	√	√	√	√	√	√	√	√
Garbage disposal	√	√	√	√		√	√	√	√	√	√	√	√	√	√
Pantry	√	√	√	√		√	√	√	√				√	√	√
Playground	√	√					√							√	
Commercial facility			√		√									√	
Prayer place	√	√	√	√	√	√	√	√	√	√	√	√		√	
Parking lot	√	√	√			√	√	√	√		√	√	√	√	√
Health facility				√			√		√	√	√	√	√	√	√
Security system	√	√	√			√	√	√	√	√		√	√	√	√
Education facility		√		√	√	√	√		√		√	√	√	√	
Fire fighter installation	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Hall facility	√	√	√	√	√	√	√	√	√	√	√		√	√	√

Note:

No	Low-cost Apartment		Low-cost Apartment
A	Jambangan	I	Randu
B	Grudo	J	Gunungsari
C	Siwalan kerto	K	Tambak Sawah
D	Sombo	L	Gulomantung
E	Dupak Bangunrejo	M	Bulusidokare
F	Pesapen	N	Warugunung
G	Penjaringansari III	O	Griya Asri
H	Wonorejo		

## 6. Improvement Strategies

Learning from the past experience on developing low cost apartment, five essential suggestions are carried out to attract more developments in the future.

- Segmented inhabitant to ensure the inhabitant rental payment and proper rental price  
For example low-cost apartment development for industrial or certain institution
- Limitation in rental period  
The penalty should be adopted by management body for the extended occupancy and illegal development
- Partnership initiation with private sectors who wants to provide the housing for their employees in their land  
As the existing low-cost apartments are always built in Government's asset land, it is possible for private sector to contribute in operating stage or construction
- Adjusted rental price  
The proper rental price should be determined to cover operational and maintenance cost
- Better coordination between Ministry Government and Local Government in planning and operation phases.

## 7. Conclusion

This paper compares the characteristics of existing low-cost apartment program implementation and regulations using case study approach. Learning from this problem allows making a recommendation on application of similar planning in other sites. The rental price, period of stay, institutional, occupancy and technical standard have been named as main barriers on repeating this model in other location. But the program should be continued.

Learning from the low cost apartment case study in Surabaya Metropolitan Area, five essential recommendations are suggested for better development in the future. Firstly, determine segmentation. Secondly, determine limitation in rental period. Thirdly, initiate the partnership. Fourthly, adjust more proper rental price and finally, better coordination between Ministry of Housing and Public Works and Local Governments. The government needs to use a wide range of considerations and analysis to determine appropriate rental price for inhabitant. It also aimed to attract the future partnership initiation. This paper recommends further research on rental price adjustment to obtain better implementation.

## References

- [1] East Java Province Body of Planning and Development, 2011, *Annual Report*, East Java Province Body of Planning and Development
- [2] Soemitro, R.A.A and Rachmawati, F (2011), *Penyusunan Action Plan Kebijakan Dan Program Pengembangan Perumahan Dan Pemberdayaan Komunitas Perumahan Jawa Timur (Action Plan Study of Policy and Housing Development Program and Housing Community Empowering in East Java)* Lembaga Penelitian dan Pengabdian Kepada Masyarakat Institut Teknologi Sepuluh Nopember
- [3] Susilawati, C & Yakobus, S, 2010, *New affordable strata the housing solutions : a case study in Surabaya, Indonesia*. In: Proceedings of 2010 International Conference On Construction & Real Estate Management
- [4] East Java Province Body of Planning and Development, 2014, *Annual Report*, East Java Province Body of Planning and Development
- [5] Statistic Bureau-East Java Province, 2013, [www.jatim.bps.go.id](http://www.jatim.bps.go.id)
- [6] Ministry of Public Works, 2012, *Low-Cost Apartment Book*, Indonesian Ministry of Public Works
- [7] Act no 20/2011 concerning Low-cost Apartment and Affordable Housing. Indonesian Ministry of Housing
- [8] Minister of Housing Regulation no 18/Permen/M/2007 concerning the guidance to determine rental price for state financed low-cost apartment, Indonesian Ministry of Housing
- [9] Mayor of Surabaya Regulation no 13/2015 concerning Low-cost Apartment rental price in Surabaya
- [10] Head of Sidoarjo District no 8/2012 concerning Low-cost Apartment rental price in Sidoarjo
- [11] Governor of East Java Province Regulation no 36/2011 concerning Low-cost Apartment Management Guidelines
- [12] Mayor of Surabaya Regulation no 30/2013 concerning Low-cost Apartment Services